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HYPERDYNAMIC LEFT VENTRICULAR FUNCTION IS ASSOCIATED WITH ADVERSE EVENTS IN ELDERLY PATIENTS UNDERGOING CARDIAC SURGERY

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Sunday, April 03, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Coronary Artery Bypass/Innovative Techniques

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Background: Left ventricular ejection fraction (LVEF) is universally recognized as a risk factor for adverse events in patients undergoing cardiac surgery. However, the emphasis is solely on abnormally low LVEF, whereas the impact of abnormally high LVEF is disregarded. Elderly patients are not infrequently found to have small hyperdynamic left ventricular cavities but the prognostic significance of this finding remains unknown.

Methods: The Frailty ABC'S study was a prospective multicenter cohort of elderly patients (age 70 years or older) undergoing cardiac surgery at four tertiary care hospitals between 2008 and 2009. Patients undergoing emergency surgery were excluded, as were those who were clinically unstable at the time of recruitment. LVEF was measured by echocardiography; in cases where a preoperative echocardiogram was not performed, LVEF was measured by angiography. The outcome measure was in-hospital major adverse postoperative events; defined as death, stroke, renal failure, prolonged ventilation, deep sternal wound infection, or need for reoperation.

Results: The cohort consisted of 131 patients with a mean age of 75.8 ± 4.4 years and 34% females. The LVEF was <30% in 10 patients (8%), 30-49% in 28 (21%), 50-69% in 78 (60%), and $\geq 70\%$ in 15 (11%). Overall, 30 patients (23%) experienced a major adverse postoperative event; those with LVEF $\geq 70\%$ and LVEF <30% had the highest observed risk (47% and 40%, respectively) whereas those with LVEF 50-69% had the lowest risk (17%). After adjusting for age, sex, prior cardiac surgery, left main disease, urgency and type of cardiac surgery, LVEF $\geq 70\%$ was the strongest predictor of major adverse postoperative events (OR 4.3; 95% CI 1.14, 16.83). Similar results were obtained after restricting the analysis to patients with echocardiographic determination of LVEF, and after adjusting for the Society of Thoracic Surgeons risk score.

Conclusions: Hyperdynamic left ventricular function is associated with a heightened risk of adverse events in elderly patients undergoing cardiac surgery. In addition to abnormally low LVEF, the impact abnormally high LVEF should be considered when predicting risk.